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FIELD DIARY

Mr. Vernon Bailey

(Official title.)

Period, May 6 to June 10, 1929

Grand Canyon, Ariz.

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May 4 Reached Grand Canyon
from Flagstaff 5 PM, after
pleasant morning and dinner party
with the Coltons at Flagstaff.

Found Mr. Petro, asst.
Supt. of Park in charge during
Mr. Tillitson's absence.

Arranged for conference, in
morning I went to El Tovar
Hotel. Found McKee and
Brooks and some of the old rangers.

Mapped life zones from
Williams to Grand Canyon
more carefully than ever before
and along auto road past
Red Butte.

Hot and dusty outside, still
and cool in woods near
Canyon.

Early spring and little green.

May 7. Held long conference
with acting Supt. Petto and
head ranger Broder and Park
Naturalist McKee and
arranged for trip down to bottom
of canyon early in morning.
Repacked outfit and sent baggage
to packer for the early morning
mule train.

Lots of birds and squirrels
and a dozen deer among
the cabins and camps where
they get food and water and
are safe and tame.

May 8. With 3 mules and our
saddle horses we started down the
Kaibab trail and reached
Phantom Ranch early in afternoon
passing from cool spring with
no flowers and little green and
bare oak branches at the top
to early summer in bottom
of canyon, hot and dry but
Agave utahensis and *Yucca*
baccata and *bailleyi* in
blossom and most of the
species of cacti and many
of the other flowers out.

Leaves full green on the cottonwoods
and mesquite and the mesquite in
full flower. Peaches nearly
half grown.

Bats numerous in evening.
One *Myotis pale californicus* secured.

May 9. Down to mouth of Bright
Angel Creek and thence down
the river about a mile, as far as
one can go.

Got a Chickadee & saw
~~two~~ more.

Set traps in evening but
a high wind spoiled the night.

The Finches & Packed came
in afternoon.

Hunted bats but too much wind.

Cool in morning, Hot
in afternoon. Windy in evening.

May 10. Caught only a few *Peromyscus* out in the fields but none in the tent where *Basodiscus* tracks were fresh. Bats flew till after sunrise. Humming birds not so conspicuous as yesterday morning. Too windy.

May 11. Got more bats but all of the little *californicus* type. Set traps but got only *Neotoma* *discolor* & *Peromyscus*.

May 12. Got a *Spilogale* & *Neotoma* *discolor* alive & kept both, also have a live *Neotoma* *californicus* in the tent house that is getting tame & eats & drinks well.

Indian camp a peak about 500
feet above rock base at mouth of Bright
Angel Creek, a level place with walls
part way around it. Old Matata a grinding
stone & bit of very old pottery.

Looks down on both sides of ridge to
creek & river. Maybe a safe retreat or lookout
but seems like the usual mountain top
after rd is where the sun first
strikes in the morning

May 13, Got *Neotoma* *dentata*
and 3 species of *Peromyscus* of
the desertum, *crinitus* &
rawleyi groups.

Caught a live rock squirrel
but let it go.

Photographed tracks of
Cnemidophorus & Toads
and gray fox and then
a flowering plant of *Yucca*
harrimani.

Saw the first canyon wren.
Mesquites are in bloom
and very fragrant. Cactus
& Agave & Yuccas in
bloom. Satura very
fragrant.

May 15. Left Phantom Ranch
after noon and with Edwin Mather
Jim Brooks & a ranger went up
to Roaring Springs and staid all night
at the trail makers camp just
west of Roaring Springs.

Upper Sonoran Zone really
begins at Cottonwood Camp where
the little live oak (*O. wislizeni*) *manzanita*
Coumaria & *Fallugia* begin in abundance
at the bottom of the canyon, but
juniper & nut pines reach down
only to 200 or 300 feet above the
Cottonwood Cabins on cold slopes.
They come to the level of the Power plant
a little above, where a trace of Lower
Sonoran runs up this far on hot
slopes.

At Roaring Springs a band
of Transition Zone species,
 Gambel's oak, Western birch, and
an occasional yellow pine follow the

South slope along the spring level apparently owing to seepage of cold water and the great springs pouring out and partly due to the high wall south of the Creek that cuts off a lot of the sunshine.

Beavers have been here at Rearing springs and farther up the creek and left old cuttings. They are said to be farther up Bright Angel Cr.

Deer have fresh beds and trails all through the Gambel's oak woods and are browsing the oak sprouts.

Shot one Neotoma californicus.

Shot a Crotalus confluentis alpestris at Cottonwood, close to the house where one bit the trail builder's little finger a few days ago. Did not hurt him much.

May 14, Rowing Springs to Top of Kaibab.

Lots of snowbanks in aspens and balsams above and below the Coconino sandstone and on north slopes at top of ridge where trail strikes road.

Aspens just in blossom, no leaves. Oaks bare, no leaves. little vegetation.

Over top of Kaibab much snow, in big drifts in open and north slopes. Salix snow 2 to 4 feet deep in woods. Water holes full of water, streams running. Hail & snowed in wide strips, cold. Aspens not started, very little green in bare ground, some butternuts & a little white daisy in blossom.

May 17 Drove southeast of Kanab
to Ryan and then south to Big
Springs and camped at the ranger
Station, then drove west down
Oak Creek and over onto Shoshone
wash as far west as the road follows
it, then south over onto head of
Jump up Canyon and walked over
a lot of deer range winter range.
where the Cowania and junipers are
badly browsed and even the nut
pines show a definite deer-line.
The sagebrush is much browsed
and the Ephedra mostly eaten up.
The oak and service berry bushes
are much browsed in places.

No deer were seen on the
winter range but some of the
tracks were fairly fresh. Found
only 2 dead deer and many more
dead cattle.

Back at and near ~~Round Rock~~
Big Springs we counted 42 deer
as we returned in spring.
This is intermediate range
and the deer are here now on
their way back to summer range.
It is in the lower edge of
yellow pine and gambel oak and
the oak are just beginning to show
very small leaves, a little grass
is up and dandelions are in
blossom.

The deer come into the bottom
of Nail Canyon for green food in
evening and find plenty of water
at Rock Springs all at the UP
station a mile north.

All of the deer seen were in
good condition except one old
doe that looked very rough and
bony and with an unnatural set.

She may have been very old
or sick or just poor. One from
looked rough and rather thin but
the rest of the 42 deer were
in as good condition as any
spring deer I ever saw, much
better than those on the south
rim of the Canyon with plenty
of grain to eat all winter.
We rode over many miles of
the finest kind of winter range
that was practically untouched
by deer. No one knows why
they do not use it.

Only about 200 cattle have
ranged on this part of the
forest during the past year
when 200 used to range,
but there is not much left
for them to eat.

We found water in two tanks,
one in Slide Canyon, the

other at Table Rock a little farther north. The water was very muddy and bad but many deer tracks were seen around the edges.

A good growth of *Califillaea* covered much of the deer winter range but it had all dried up when leaf size for want of water. The country is very dry.

Amelanchier is in flower on the winter range and one big bushy cactus with red flowers is out. A few small flowers and two *Calochortis fumosus* were found in bloom.

At Table Rock Corral some 20 or 30 dead deer had been caught in the cedar post corral fence and killed but the fence has been broken open so they can not

try to jump or get through
if any more.

Mr. W. G. Mann says he has
seen as many as half a dozen
dead deer in a deep horseback
riding over the winter range.

May 18. To Pine Flat Reservoir and
hunting camp then over to head
of Sawats Canyon to Quadrant
No. 2. All Transition zone and
fine yellow pine, ^{front} and gambel oak.
Deer come at water holes and
some all along, eating oak leaves
and numerous small plants including
Croswillae macedouglii, *Lactuca*,
and a little milky guinea *Aegopis*?
taracapolia, *filares*, young grass
and juicy plants so they can stay for
a long time on dry ridges with no
water for many miles.

Went on to end of ridge south of
Sawats Canyon and looked down
over it and jump up Canyon into
Karat Canyon. Then back
and around up Indian Canyon
to Big Saddle Camp and up to
Deer camp and then over
to Dry Hollow Park road & back.

Out all day + covered 62 miles and saw a lot of the winter range of deer which is most intensely grazed along the breaks of Kanab Canyon and numerous deer trails lead down into the big flat valley above the sharp bottom of Kanab Canyon proper.

Much of the *Cowanina* ~~is~~ ^{is} killed and all closely branched and the junipers and nut pines are trimmed high by deer.

Lots of shed horns all over winter range but only 2 dead deer found on winter range and two on yellow pine intermediate range where they are now. These few dead deer may have been killed by lions or coyotes or shot in open season.

There are no more than would
be expected normally if food
were at its best and the
70 or 80 deer seen in the
Yellow pine country are in
a good condition as any
deer I ever saw in spring.
None seemed very poor or
at all weak. All are still in
gray winter coat - but in
many it is very rough and
ragged. The horns of old
bucks are often 8 or 10 inches
long, wide and clubbed, or
in the younger bucks were
spikes of 4 or 5 inches long.
None of the does showed signs
of being heavy with fawn
but the fawn season must
be well beyond this.

Found much sign of ~~tribe~~
Squirrel work and saw a few
big nests in the big pines.
Saw one live squirrel & one
dead one. They are common
on dry ridges 5 to 10 miles
from any water and must
get their moisture from food.

Road squirrels are common
at long distances from water,
many miles where they can
not get any except when
it rains which may be
at intervals of months.

The same applies to
Callospermophilus lateralis and
Eutamias *adustus* which
are common all through
the yellow pines. Three or four
of the chipmunks were found off
one big yellow pine and
probably eating as one shot was
a highly developed old male.

Lions
Cats
Coyotes
Foxes

Found skulls of bobcat,
Wolverine and Coyotes at
old lion hunters camp on
ridge near Sawato Canyon
and numerous Coyote tracks
and signs along trails, roads
and around water holes.
Also droppings made up of
woodrat woodrat and rabbit
remains.

Some holes were probably
made by badgers.

Jack Butler & his companions
- Adams hunt lions and live
at Ryan. They have a fine
bunch of lion dogs & a litter of
puppies at camp.

Jack has killed 58 lions in
the year and a half he has been
hunting, mostly in Sawato
Canyon but also around Ryan.

Porenpines are fairly common all through the yellow pine & Canadian forests and work out on ridges where they can never get any water unless it should sometime rain but in summer they eat green vegetation and in winter snow.

Saw one Jack Rabbit out on point at edge of Kaval Canyon but failed to get it and saw plenty of signs of Cottontails even in the quadrats of the Forest Service. Thomomys fossor hills are common in higher places in Transition Zone. No gopher hills below Rock Springs except at Kaval.

Bobcats & gray foxes are common in the canyons.

Coyote pellets

Abundant on Sawtooth Point and all
over Big Springs country -
Contains mostly -

Oer hairs	-	-	only a few saved
Neotoma	-		hairs & bones, abn.
Cottontail	-	" "	a few
Peromyscus	-	" "	abundant
Perodipus	-		one part of skull

Bird feathers & bones, in several

Saw a *Canis* *boraxensis*
and lots of the common birds
Some *Chondestes* in junipers
near edge of Canyon
A Scott's oriole yesterday was
down near the Canyon of
Kavab Creek.

Found *Elaeagnus rotundifolia*
common along edge of Canyon.
Got skulls and one skeleton
of deer on ridge south of Sawtooth.
Shed horns are numerous.

May 19, Studied deer pens and traps and gave Mr. W. G. Mauer Forest supervisor of the Kaibab Nat. Forest specifications for a small trap to be set in fence or to be baited. Trap 54 inches long, 42 inches high and 16 inches wide, made over frame of 2x2 with rounded inner corner covered with one inch poultry wire and a heavier 3 inch mesh wire over it, wire to surround top, sides and bottom. A one inch board bottom and the two open ends to be closed by drop doors of heavy galvanized iron in grooves when the deer strikes a thread in middle of trap with front legs or breast. A canvas or burlap nailed on top and rolled up on both sides to drop down when the doors drop.

By using bait a snare trap can be used as the deer will go in one way only & the thread to drop the doors can be closer to the far end of the trap.

The same trigger as used on the Beaver carcass drop gate can be used. The trap should not weigh more than 30 or 40 lbs and can be used for a shipping crate and kept dark so as not to scare the deer.

The local ranger Parks, does much of the trapping.

The present pen method is crude & clumsy & not very effective and the deer are scared and many die. They are forced from one pen to another & finally into crates. There are several large pens with good grass and dandelions.

May 26. Down Kaibab Trail To
Bright Angel Creek at Phantom Ranch
Aspens and Gambel's oaks at top
beginning to blossom.

Between Tunnel and Roaring Springs
found coppery *Sceloporus* common in
full breeding colors and probably nesting.
One large male collected measures
Timex in total length, Tail $4\frac{1}{4}$ from
anus. Scales rough and very
strongly crenate and slender pointed.

Color, fresh, coppery brown over
all of upperparts, more olivaceous brown
on younger individuals. Lowerparts
purplish gray with brilliant green
or bluish green sides ^{streaks} and ^{ventral} ^{series of} ^{black} ^{spots}, bordered medially by black.
Another old male is faintly mottled on ^{ventral} ^{series of} ^{black} ^{spots}
and they eyes are silvery yellow or white in
a narrow iris ring and large black pupil.
Another has pale yellow iris.

Phenology across the Canyon.

The sequence of flowering from top to bottom and bottom to top in crossing the Grand Canyon is a moving picture of rare beauty and interest.

Leaving Bright Angel Point at 8 AM on May 20 we find the aspens just in flowering catkins and dainty green leaves while below a few early *Pedicularis* are opening their long tubular flowers among purple leaves. and that is all.

Just over the rim as the trail dips down the gambel oaks are showing leaves the sign of a squirrels paw and their tasselled catkins are coming out but there is little else until we get down a thousand feet below the top where a trace of upper Sonoran begins on sheltered slopes that get more than a fair share of sunshine.

Here a few redbuds show royal purple clouds and a little lower the fringe tree is in full glory of its feathery flowering. The tobacco, *Carotinus*, also throws foamy sprays right out to the trail and the thick leaved yucca gives bears big white roses. A few vetulus and little yellow mustards and the golden globes of Oregon grape (*Robur* ripens) give color close to the ground.

Then as we come down below the tunnel on the trail there are fragrant cliff rose and *Saxifraga* among the junipers and nut pines and down by roaring springs the deep red flowers of the branched cactus and the pink roses of the white spined little prickly pear.

A few blue flax and larkspur give a touch of color among the fragrant junipers and nut pines.

Down at ~~Lower~~ ^{Lower} Spring
the Powerhouse below Roaring Springs
a trace of Lower Sonoran is shown
in the big prickly pear with which
was not in blossom until near
Cottonwood Trail station where their
orange and crimson flowers are
showing on the warm slopes
and with the tall yellow spikes of
the century plants in full bloom.
Down at Phantom Ranch both
have almost past the flowering
stage. Even the mesquites
are dropping their yellow catkins
tho still beautiful and fragrant.
but the gray arrowwood, Platanus
~~sericea~~, is just blossoming
out in pink tufted spikes and
gives its pleasant pungent odor
to the Creek bottoms.

Arrived at Phantom
Ranch at 3 PM & began
packing up to go to Pipe Creek
tomorrow.

Warm and pleasant in the
Canyon.

May 21 Packed up and left
Phantom Ranch At 10 AM
crossed the Suspension bridge
and climbed the slope to the
Tonto Plateau. Then crossed on the
Indian Garden trail to Pipe Creek
where we camped in a little
ranger cabin. Found the south
side of Canyon very dry and
flowers scarce except for the
Agave utahensis which is in
full flower on the Tonto and a few
cacti, *Opuntia engelmannii* and *bassotii*.
Coloquhne ramulosa (Black brush)
is the dominant bush of the Tonto
climber up to the edge of the upper Sonoran
where it almost meets the juniper and
nut pine. Three or four species
of *Baccharis* also came up to
Pipe Creek which is near the junction
of upper and lower Sonoran zones.

May 22. Explored Pipe Creek valley
clear to where it jumps over the
Red wall where *Ostrya kenolensis*
is the abundant tree in the gulch.
Higher up we can see dense strips
of Douglas spruce and white fir on
the two upper shelves of the rim.

Found an old barren of the mountain
sheep and a few bones that are
probably sheep bones. There are
lots of old mouse pits and a
good supply of century plants.

Two *Onychomys* seen
and a lot of rock squirrels.

Set 27 traps.

Rained hard for five minutes
just at sundown and spoiled
most of my traps.

Cold in evening.

May 24, Caught 3 Perognathus
penicillatus and two Neotoma albigula
and another brown rattlesnake
of the confluentis group.

Saw a lot of Ambrosophis
and an old and young Copestaud.

A still, beautiful morning,
rather warm day, no shadows

Rattlesnake just 3 feet long, not
very large, but as large as they get.

♂. Iris silvery yellow; pupil ^{in daylight} a narrow
line of black, vertical with nose slightly
raised. In morning pupil much
wider and vertically oval.

Stomach contained young rock squirrel
about 6 inches long, tail and all,
probably before eyes were open.

Snake skinned and saved for
specimen.

May 25 Walked out to Indian
Garden, $2\frac{1}{2}$ miles, and watched
for birds and sized up ~~the~~
for collecting. No better than
Pipe Creek if as good so
did not set any traps.

The antelope are still here
but poor and panting and
not enjoying life. There are
7 old and 4 young of this year.
3 does and four bucks, too many
bucks as the old one spends all
his time chasing the others
away. He also chases away
any dogs and once ran a bobcat
down the trail clear to the edge of
the Canyon. Both were running at
full tilt.

The mother antelope have their
young hidden until two or three
weeks old, then bring them in.

Cactus in Canyon
Echinocactus leucanthii

Cereus engelmannii

Cereus multicapso upper Sonoran

Echinocereus

Mammalaria

Opuntia basilaris
Lower Sonoran

Opuntia arborescens subsp.

Cactus

Opuntia engelmannii
light yellow flowers with greenish
centers, long white spines

Opuntia
Deep red flowers, broad pads
one long spine in a place

Opuntia
Pink flowers, pointed pads
one or two long spines. Not
so large.

Opuntia
Dark yellow flowers, orange centers
rounded pads, tall, erect plant,
short tufts of brown spines,
no very long spines.
Thantou to above Pipe Creek, Con.

Opuntia
Small, long white spines, pink flowers
Upper Sonoran.

Urocyon

Food as shown by pellets in Grand Canyon

Citellus grammurus - , teeth & fur & bones

Amospermophilus - not ~~over~~ teeth

Eutamias - not seen,

Peromyscus , fur & bones ^{abund.} & feet & teeth

Neotoma " " " com.

Bird feathers - in several

Snake skin & bones - in one

Seeds of hawberry - in one

Insects, beetles & others

May 27, Packed up and went up
trail to top by way of Indian Gardens
with two pack mules and 3 saddle
mules.

Caught another beautiful *Perognathus*
shot another *Ammodramus* near
Indian Gardens had caught one
last night near our camp.

Saw 3 mule deer at Indian
Gardens where they had just
come down from El Tovar
as they often do, stay a few
days and return. Saw some of
the other mule deer at the top.

The Antelope at Indian Gardens
are in better shape than last
year at the end of July but
not very good. The old buck
wears himself out chasing off
the younger bucks who keep out
in the hills most of the time.
There are two does, each with

two fawns born May 14 & 19 are still out in the brush but one of the mothers brought her two down the trail today nearly to the station. The other has hers out in the black brush on the Zuito mesa near where the trail goes down to the river in Garden Creek. She goes out to feed them once or twice a day, then comes back. Knute Scheffer, the keeper at Indian Gardens has followed her and seen her feed the young and then leave them hidden a little way apart. He expects them to come in with her in a few days, when a week or two old. They are out about a mile. She spends a part of her time around the station eating alfalfa hay, rolled barley, prairie

Alveto says there are 17 mountains
sharp in the next corner west of
Indian Gardens and a few more along
the trail occasionally.

Our guide (Howard) saw four
"goats" he thought on the bench below
the ~~Indian~~ ~~Gardens~~ ~~Trail~~, some 1500 feet down
the ~~Indian~~ ~~Gardens~~ ~~Trail~~ this
morning, probably ewes or yearlings.
We found an old sheep house in the
canyon above Pipe Creek and many
fragments of sheep bones, some of
them charred, in the old Indian
caves below the cabins.

and salt & sugar. In very
food & sugar which she takes
from a tin cup from Kuntie's
hand.

The other doe is of last
year's young and will not have
a young this year. There are
three other young bucks kept
away by the old bucks - 11 in all.
Newt ~~Schuyler~~ says the old bucks
will chase any dog and one
day he came down the trail
on a dead run after a
bobcat and the cat was
doing its best to keep out
of reach of the buck.

The antelope eat mostly hay and
grain but also all sorts of
flowers and fruit and plants
around the ranch. I could
not see what they were eating
outside.

May 28 to June 4 inclusive
Working at Grand Canyon
Bright Angel Trail & El Tovar.
Writing reports, trapping,
shipping specimens but working
this trap.

June 5. With Mr. Tillitson went
by Cameron, Marble Canyon Bridge
House Rock Valley to Jercots Lake
and V.T. Ranch, 230 miles
Got in late and found Major
Goldman, Rortelford, Rullings,
and Mann of the Forest Service
and Klusgrave and State game
warden Bealiss & Mr. Hart of
Arizona. They have been
here 3 days, going over the
same range I went over
10 days ago on the west
side of the Kaibab

D

Mapped life zones all
the way around.

Country very dry this year
and few flowers or green plants.
No grass or fuel for stock or
game.

Saw the buffalo in Hornsuckle
Valley.

Cattle dying along way &
very poor.

Rises, About 75 or 80 heads
mining at large in Houserock
Valley. With this year's calves
about 90.

Hugh Anderson in charge of
them, address Indian or Flagstaff.

A good valley for Antelope

June 4. Woke up at V. T.
on a beautiful bright morning with
frost on the meadows.

Saw 75 deer close by, all
in good condition and all but a
few fawns and does in the brown
summer coat. A few still retain
ragged old light gray coats
of winter pelage. The bucks have ^{big} magnificent

Bunched on best patches of
little clover, Clatonia and
dandelion, the best and most
abundant food, and much eaten.
Had also eaten some Saxifrage
and a very little Coge willae
unedoughii.

The men reported over 200 in
the meadow last evening and
over 500 seen yesterday.

Drove to Houserock Valley, then south
to Crane and South Canyon and
examined deer ranges, then back
to camp for the night.

~~Then~~

At South Camp, where the last year's hunting camp was located we found overgrazed conditions of Cliffrose, juniper and other vegetation, also it is badly overgrazed all along the edge of the road. Numerous shed horns seen. Some fresh tracks of deer seen but no deer.

Came back to Crane Spring and shot in store-room on floor.

Saw four bats go out of old pine house, apparently *Myotis*.

June 7, Hunted for buffalo
but found only a few

Came back to Jacobs Lake
for lunch, then down ridge
to east overlooking Carus
Springs from the top.

Country much browsed off
and most of young pines, spruce
and cedar damaged or killed.
All young aspen growth
gone and the oak & locust &
Currant badly damaged.

Back to V. T. Park for
supper at night.

Counted 348 deer as we
came in.

Saw 3 white tailed squirrels
and many cuttings.

Rabbits numerous in V. T.
20 or 30 or more.

June 8 - Evening grasshoppers numerous in aspens around V T Hotel, eating capsules of ~~a~~ half ripe aspen twigs a dozen or more of them in one tree at times. Chirping and making the buzz note after the chirp but not trying to sing.

June 8 Went down to Forest Point then back by Archelus Hollow and down Indian Creek Canyon to edge of Grand Canyon just east of Fishtrap, then back by Indian Canyon to Castle Springs just south of Big Springs and up Castle Canyon and over to Hookout Lakes, then across to the south west corner of Pleasant Park and back to V-T Ranch. Had supper and drove to Bright Angel Point for the night.

Mapped life zones and examined deer winter range and summer range and intermediate ranges where they have done most serious damage to young timber.

Covered about 100 miles
Saw 4 dead fawns, probably starved.

Counted 253 deer mostly in
V T Park as we returned.

Mostly in red coat at bases
of old bushes half grown, a foot
wide or more.

I want to camp at end of
Indian Holbo, at Castle Springs
at Lookout Lakes and Crane
lake. Also want to stop
at Big Springs & see Robert
Pack & wife & get lots of notes

No flowers or seed on aspens
except at V. T. Park where
capsules half grown & much
eaten by Evening Grosbeaks,
Purple Finches, Chatskillo & Chickadees.

The rangers shot 3 porcupines
near Lookout Lakes. One exposed
was an old female giving milk

Much aspen fruit at Bright Angel
Point

Plants eaten by deer

<i>Cowanio stansburyana</i>	favorite winter food
<i>Kingia tridentata</i>	rare but eagerly eaten
<i>Fallugia paradoxa</i>	much eaten
<i>Arceuthobium integrum</i>	" "
" <i>montanum</i>	" "
<i>Rosa</i>	much eaten
<i>Ribes cereum</i>	" "
<i>Amelanchier utahensis</i>	" "
" <i>pallida</i>	" "
<i>Ceanothus fendleri</i>	" "
<i>Juniperus utahensis</i>	a little eaten, much eaten when necessary
<i>Pinus edulis</i>	a little eaten if necessary
" <i>ponderosa</i>	much eaten
<i>Abies concolor</i>	favorite conifer
<i>Picea pungens</i>	much eaten
" <i>englemanni</i>	" "
<i>Pseudotsuga</i>	some eaten
<i>Populus alba</i>	favorite summer browse
<i>Quercus gambelii</i>	much eaten in places
<i>Pseudocedrus</i>	much eaten, some killed

<i>Ephedra viridis</i>	much eaten
" <i>nevadensis</i>	" "
" <i>trifurca</i>	" "
<i>Artemisia tridentata</i>	eaten & killed in places
" <i>tridentata</i>	" "
<i>Chrysothamnus</i>	one is much eaten, others not
<i>Elaeagnus rotundifolia</i>	somewhat eaten
<i>Aretostaphylos pungens</i>	a little eaten
<i>Gutierrezia</i>	much relished
<i>Rhus</i>	some eaten
<i>Rubus strigosus</i>	rare but eagerly eaten
<i>Symphoricarpos</i>	extensively eaten
<i>Cornus</i>	rare but eaten when available
<i>Sambucus</i>	some eaten
<i>Atriplex canescens</i>	much eaten
<i>Trifolium montanum</i>	favorite summer food
<i>Clitoria maritima</i>	favorite spring food
<i>Taraxacum</i>	" "
<i>Gnaphalium taraxacifolium</i>	some eaten
<i>Syntherisma</i>	a little eaten
<i>Cogswellia</i>	a little eaten
<i>Calliobolus</i>	eagerly eaten
<i>Achillea</i>	much eaten
<i>Lupinus</i>	flowers & seed pods eaten
<i>Polygonum</i>	eagerly eaten

Plants rejected by deer

Juniperus scopulorum

Berberis fremontii

Chrysothamnus ^{repens} 2 species

Aster ~~fendleri~~

Gnaphalium

Delileia

Euphorbia

Grasses generally

June 9 At Bright Angel Point

Examined clover stand at
Ranger Station & old station
meadows. Found clover up thick
and thrifty around station, scarce
and poor in meadow.

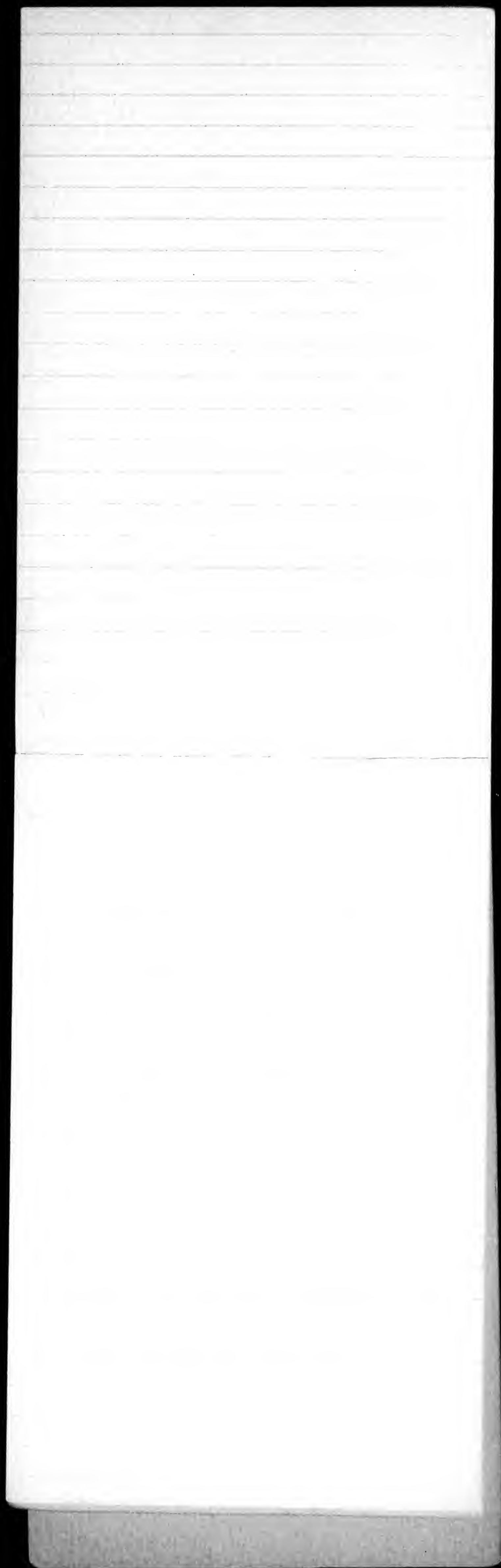
Dandelions much eaten.

A little wild mountain clover in
meadows being eaten. Also added
red raspberries, *Cornus* and *Garrya*
to list of deer foods.

Gave talk with lantern
slides at Hotel in evening.

June 10. Started across
Canyon 8:30 AM; on
Peaches and Tillitson in Rastus
Aspens loaded with pretty
catkins, half ripe and the
cotton will be flying in
a couple of weeks probably.
Pseudotsuga arizonae
in full blossom near Tunnel.
Flowers large and beautiful,
pale pink but not fragrant.
Lower down near Cottonwood the
fuzzy pads are full grown.
Hills I must get seeds when ripe.
Canyon very dry, especially in
Lower Sonoran zone.
Cool & windy.

June 11-18



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